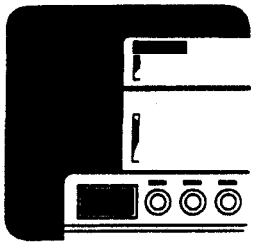
STANDARDS/REGULATIONS



APPLIANCE EFFICIENCY REGULATIONS FOR

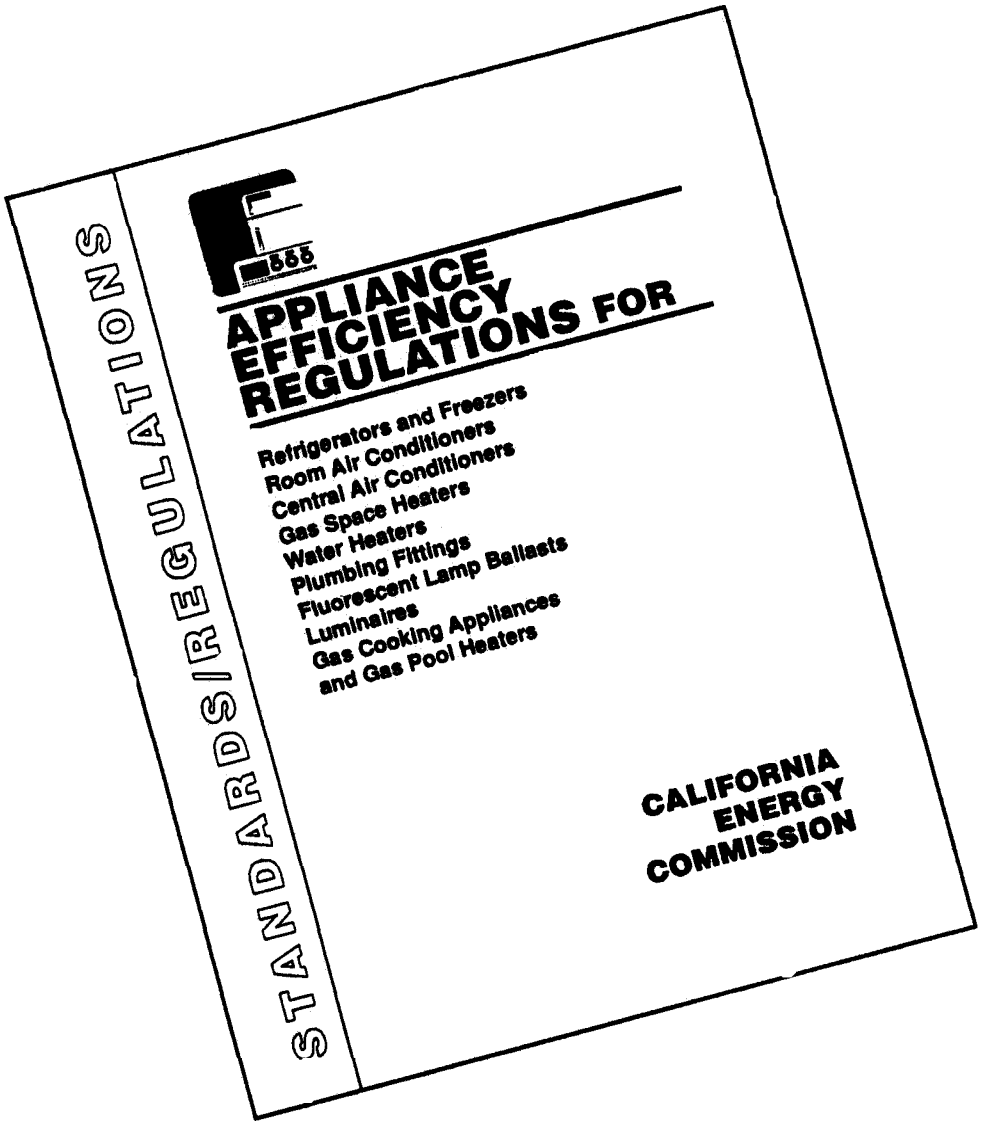
Refrigerators and Freezers
Room Air Conditioners
Central Air Conditioners
Gas Space Heaters
Water Heaters
Plumbing Fittings
Fluorescent Lamp Ballasts
Luminaires
Gas Cooking Appliances and Gas Pool Heaters

SEPTEMBER 1992

CALIFORNIA ENERGY COMMISSION

Pete Wilson, *Governor*

P400-92-029



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APPLIANCE EFFICIENCY REGULATIONS FOR

REFRIGERATORS AND FREEZERS

ROOM AIR CONDITIONERS

CENTRAL AIR CONDITIONERS

GAS SPACE HEATERS

WATER HEATERS

PLUMBING FITTINGS

FLUORESCENT LAMP BALLASTS

LUMINAIRES

GAS COOKING APPLIANCES

AND GAS POOL HEATERS

SEPTEMBER 1992

TABLE OF CONTENTS

APPLIANCE EFFICIENCY REGULATIONS

(This Table is not part of the Regulations but is provided here for the convenience of the reader.)

CALIFORNIA CODE OF REGULATIONS
TITLE 20, CHAPTER 2
SUBCHAPTER 4: ENERGY CONSERVATION
ARTICLE 4: APPLIANCE EFFICIENCY REGULATIONS

§ 1601. Scope.

The provisions of this article shall apply to the testing, certification and enforcement of efficiency standards for the following types of new appliances sold in California:

(a) Refrigerators, refrigerator-freezers, and freezers which can be operated by alternating current electricity, excluding the following types:

(1) those designed expressly for use in recreational vehicles and other mobile equipment;

(2) those refrigerators and refrigerator-freezers with total refrigerated volume exceeding 39 cubic feet;

(3) those freezers with total refrigerated volume exceeding 30 cubic feet;

(4) those designed to be used without doors;

(5) remote refrigerators, refrigerator-freezers, and freezers; and

(6) those refrigerators, refrigerator-freezers and freezers which have been certified to the Commission:

(A) not to be distributed in commerce for personal use by individuals,

(B) to comply with the requirements of Standard 1 (1984) or Standard 7 (1983) of the National Sanitation Foundation or Standard CRS-S1-86 of the Commercial Refrigerator Manufacturers Association (1986),

(C) to have permanently displayed in an accessible place on the appliance a label stating:

"This model is not a consumer product as defined by federal law and is not designed, distributed, or intended for personal or residential use," and

(D) to have had its performance specified in the manufacturer's literature, based on the standard, ANSI/ASHRAE 117-1986, Chapter 9.

(b) Room air conditioners, excluding the following types:

(1) those installed in mobile homes at the time of construction; and

(2) those designed expressly for use in recreational vehicles and other mobile equipment.

(c) Central air conditioning heat pumps, regardless of capacity, except that requirements for central air conditioning heat pumps with cooling capacity of 135,000 Btu per hour or more apply to heating performance but not cooling performance; other central air conditioners with a cooling capacity of less than 135,000 Btu per hour, excluding the following types:

(1) those installed in mobile homes at the time of construction;

(2) those designed expressly for use in recreational vehicles and other mobile equipment; and

(3) those designed to operate without a fan.

(d) Spot air conditioners

(e) Gas space heaters, excluding the following types:

(1) gravity type central furnaces;

(2) heaters installed in mobile homes at the time of construction;

(3) heaters designed expressly for use in recreational vehicles and other mobile equipment;

(4) fan type central furnaces with input rates of 400,000 Btu per hour or more; and

(5) infrared heaters.

(f) Water heaters, excluding the following types:

(1) nonstorage type electric water heaters;

(2) storage type water heaters installed in mobile homes at the time of construction; and

(3) water heaters designed expressly for use in recreational vehicles and other mobile equipment.

(g) Plumbing fittings, including showerheads, lavatory faucets, sink faucets and tub spout diverters.

(h) Fluorescent lamp ballasts which have all the following characteristics:

(1) intended to operate at nominal input voltages of 120 or 277 volts;

(2) an input frequency of 60 Hz;

(3) have maximum lamp operating currents greater than 350 milliamperes and less than 500 milliamperes; and

(4) can be used to operate fluorescent lamp types F40T12 or F96T12 but excluding each of the following types:

(A) those designated to be used in ambient temperatures of 0°F or less,
(B) those with power factors less than 0.60,
(C) those designed for dimming.

(i) Luminaires with a fluorescent lamp ballast of the type described in Section 1601 (h) as a component.

(j) The provisions of this article also restrict the sale of the following gas appliances if they are equipped with constant burning pilots:

(1) fan type central furnaces
(2) fan type wall furnaces
(3) cooking appliances
(4) pool heaters

(k) The provisions of this article shall not apply to new appliances manufactured in California, but sold outside the state, nor to new appliances sold wholesale in California for final retail sale outside the state. For purposes of these regulations, the sale of a building which contains a new, permanently installed appliance is not considered the sale of a new appliance.

The following standards are incorporated by reference in section 1601.

National Sanitation Foundation (NSF)

Number	*Title*	*Year*
Standard No. 1	Soda Fountain and Luncheonette Equipment	1984
Standard No. 7	Food Service Refrigerators and Storage Freezers	1983

Copies available from:
National Sanitation Foundation
3475 Plymouth Road
P.O. Box 1468
Ann Arbor, MI 48108

Commercial Refrigerator Manufacturers Association (CRMA)

CRS-S1-86	Voluntary Minimum Standard for Retail Food Store Refrigerators	1986

Copies available from:
Commercial Refrigerator Manufacturers Association
1101 Connecticut Avenue
Washington DC 20036

American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)

ANSI/ASHRAE 117-1986	Methods of Testing Self-Service Closed Refrigerators for Food Stores	1986

Copies available from:
American Society of Heating, Refrigerating
and Air-Conditioning Engineers
1791 Tullie Circle NE
Atlanta, GA 30329

NOTE: Authority cited: Sections 25213, 25218(e), 25402(c) and 25960, Public Resources Code. Reference: Sections 25402(c) and 25960, Public Resources Code.

1602. Definitions.

For the purpose of this article the following definitions shall apply:

(a) General.

(1) "AHAM" means the Association of Home Appliance Manufacturers.

(2) "ANSI" means the American National Standards Institute.

(3) "ARI" means the Air-Conditioning and Refrigeration Institute.

(4) "ASHRAE" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

(5) "BSR" means the Board of Standards Review of ANSI.

(6) "CFR" means the Code of Federal Regulations.

(7) "Consumer product" means an appliance that is regulated by the National Appliance Energy Conservation Act as specified in 42 U.S.C. section 6292, and, as defined there, is any article of a type which in operation consumes, or is designed to consume, energy; and which, to any significant extent, is distributed in commerce for personal use or consumption by individuals; without regard to whether such article or such type is in fact distributed in commerce for personal use or consumption by an individual. Products designed solely for use in recreational vehicles or other mobile equipment are not consumer products.

(8) "Date of sale" means the day when the appliance is physically delivered to the buyer.

(9) "Manufacturer" means any person engaged in the original production or assembly of an appliance.

(10) "Private brand packager" of plumbing fittings means any person or entity that buys plumbing fittings from a manufacturer, packages them using its own brand name, and distributes them for sale using its own brand name.

(11) "Reassembler" of plumbing fittings means any person or entity that buys plumbing fittings from a manufacturer, modifies them, and distributes them for sale using its own brand name.

(b) Refrigerators, Refrigerator-Freezers and Freezers.

(1) "Automatic defrost system" means a defrost system in which the defrosting action for all refrigerated surfaces is initiated and terminated automatically.

(2) "Freezer" means a cabinet designed as a unit for the freezing and storage of food at temperatures of 0^{o}F or below and having a source of refrigeration requiring an energy input.

(3) "Manual defrost system" means a defrost system in which the defrosting action for all refrigerated surfaces is initiated manually.

(4) "Partial automatic defrost system" means a defrost system in which the defrosting action for the refrigerated surfaces in the refrigerator compartment is initiated and terminated automatically and the defrosting action for the refrigerated surfaces in the freezer is initiated manually.

(5) "Refrigerator" means a cabinet designed for the refrigerated storage of food at temperatures above 32^{o}F, and having a source of refrigeration requiring an energy input. It may include a compartment for the freezing and storage of food at temperatures below 32^{o}F, but does not provide a separate low temperature compartment designed for the freezing and storage of food at temperatures below 8^{o}F.

(6) "Refrigerator-freezer" means a cabinet which consists of two or more compartments with at least one of the compartments designed for the refrigerated storage of foods at temperatures above 32^{o}F, and with at least one of the compartments designed for the freezing and storage of food at temperatures below 8^{o}F which may be adjusted by the user to a temperature of 0^{o}F or below. The source of refrigeration requires energy input.

(7) "Remote refrigerator, refrigerator-freezer, or freezer" means a refrigerator, refrigerator-freezer, or freezer that

(A) cannot physically be tested using the test method specified in section 1603(a) without modifying the test method;

(B) receives refrigerant fluid from a condensing unit located externally to its cabinet assembly, usually at least a few meters away; and

(C) is capable of being purchased and installed with different types of compressor or condenser, so that its efficiency depends on the type of compressor or condenser applied by the purchaser, installer, or user.

(8) "Upright freezer" means a freezer whose access door is at the front of the appliance.

(c) Air Conditioners.

(1) "Air conditioner" means one or more factory made assemblies which include an evaporator or cooling coil and an electrically driven compressor and condenser combination, and may include a heating function.

(2) "Central air conditioner" means an air-conditioner which is not a room air conditioner.

(3) “Central air-conditioning heat pump” means a central air conditioner which is capable of heating by refrigeration, and which may or may not include a capability for cooling.

(4) “Coefficient of performance (COP)” of a heat pump means the ratio of the rate of useful heat output delivered by the complete heat pump unit (exclusive of supplementary heating) to the corresponding rate of energy input, in consistent units and under operating conditions specified in section 1603(b) and (c). British thermal units shall be converted to kilowatt-hours at the rate of 3412 British thermal units per kilowatt-hour.

(5) “Cooling capacity” means a measure of the ability of a unit to remove heat from an enclosed space under test conditions specified in section 1603(b) and (c).

(6) “Energy efficiency ratio (EER)” means the ratio of the cooling capacity of the air conditioner in British thermal units per hour, to the total electrical input in watts under test conditions specified in section 1603(b) and (c).

(7) “Heating seasonal performance factor (HSPF)” means the total heating output of a central air-conditioning heat pump in British thermal units during its normal usage period for heating divided by the total electrical energy input in watt-hours during the same period, as determined using the test procedure specified in section 1603(c).

(8) “Packaged terminal air conditioner” means a room air conditioner consisting of a factory-selected combination of heating and cooling components, assemblies or sections, intended to serve an individual room or zone and constructed in a manner which complies with the definition contained in the standard, ANSI/ARI 310-1985.

(9) “Room air conditioner” means a factory encased air conditioner designed as a unit for mounting in a window or through a wall, or as a console. It is designed for delivery of conditioned air to an enclosed space without ducts.

(10) “Room air-conditioning heat pump” means a room air conditioner, which is capable of heating by refrigeration, and which may or may not include a capability for cooling.

(11) “Seasonal energy efficiency ratio (SEER)” means the total cooling output of a central air conditioner in British thermal units during its normal usage period for cooling divided by the total electrical energy input in watt-hours during the same period, as determined using the test procedure specified in section 1603(c).

(12) “Single package central air conditioner” means a central air conditioner which is not a split system central air conditioner.

(13) “Split system central air conditioner” means a central air conditioner consisting of two or more major components; a compressor-containing unit, normally installed outside the building, and a non-compressorcontaining unit, normally installed within the building.

(d) Spot Air Conditioners

(1) "Spot air conditioner" means an air conditioner that discharges cool air into one zone within a space and discharges rejected heat back into that space where there is no physical boundary separating the discharges.

(e) Gas Space Heaters.

(1) "Annual fuel utilization efficiency" of a space heater means a measure of the percentage of heat from the combustion of gas which is transferred to the space being heated during a year under conditions specified in section 1603.

(2) "Boiler" means a space heater which is a self-contained appliance for supplying steam or hot water primarily intended for space heating application.

(3) "Central furnace" means a self-contained space heater designed to supply heated air through ducts of more than 10 inches length.

(4) "Duct furnace" means a space heater designed to be installed within a duct.

(5) "Energy consumption during standby" means the energy consumed by the gas space heater when the main burner is not operating. It does not include energy consumption related to associated cooling equipment. It shall be reported in watts, based on a conversion factor of 3.412 British thermal units per watt-hour.

(6) "Fan type heater or furnace" means a space heater that provides for the circulation of heated air at pressures other than atmospheric.

(7) "Floor furnace" means a self-contained, floor mounted space heater without ducts.

(8) "Gravity type heater or furnace" means a space heater which provides for circulation of heated air through the differential densities of the heated air and the nonheated air.

(9) "Infrared heater" means a space heater which directs a substantial amount of its energy output in the form of infrared energy into the area to be heated.

(10) "Room heater" means a free-standing non-recessed space heater.

(11) "Seasonal efficiency" of a space heater means a measure of the percentage of heat from the combustion of gas and from associated electrical equipment which is transferred to the space being heated during a year under conditions specified in section 1603.

(12) "Space heater" means an appliance that supplies heat to a space for the purpose of providing warmth to those objects within the space.

(13) "Steady state efficiency" or "thermal efficiency" of a space heater means a measure of the percentage of heat from the combustion of gas which is transferred to the space being heated under steady state conditions specified in section 1603.

(14) "Unit heater" means a self-contained fan type heater designed to be installed within the heated space.

(15) "Wall furnace" means a wall mounted, self-contained space heater without ducts that exceed 10 inches.

(f) Water Heaters.

(1) "Instantaneous water heater" means a water heater that is not a storage water heater or a heat pump water heater.

(2) "Large water heater" means a water heater that is not a small water heater.

(3) "Mobile home storage-type water heater" means a storage-type water heater designed expressly for use in mobile homes.

(4) "Small water heater" means a water heater that is a gas storage water heater with an input of 75,000 Btu per hour or less, an oil storage water heater with an input of 105,000 Btu per hour or less, an electric storage water heater with an input of 12 kilowatts or less, a gas instantaneous water heater with an input of 200,000 Btu per hour or less, an oil instantaneous water heater with an input of 210,000 Btu per hour or less, an electric instantaneous water heater with an input of 12 kilowatts or less, or a heat pump water heater.

(5) "Standby loss of a storage-type water heater" when expressed as a percent means the ratio of heat lost per hour to the heat content of the stored water above room temperature. "Standby loss of a storage-type water heater" when expressed in watts per square foot means the heat lost per hour, per square foot of tank surface area.

(6) "Storage-type water heater" means a water heater that heats and stores water within the appliance at a thermostatically controlled temperature for delivery on demand.

(7) "Thermal efficiency" or "recovery efficiency" of a water heater means a measure of the percentage of heat from the combustion of gas which is transferred to the water as measured under test conditions specified in section 1603.

(8) "Water heater" means an appliance for supplying hot water for purposes other than space heating or pool heating.

(g) Plumbing Fittings.

(1) "Flow rate of a tub spout diverter" means the leakage through the diverter directly into the bathtub when the device is in the diverting position.

(2) "Flow restricting mechanism" refers to a means or device to restrict the flow of water.

(3) "Lavatory faucet" means a plumbing fitting designed for discharge into a lavatory.

(4) "Metering faucet" means a faucet which, when turned on, will gradually shut itself off over a period of several seconds. It may or may not be adjustable for cycle duration.

(5) "Plumbing fitting" means a device designed to control and/or guide the flow of water into or convey water from a fixture.

(6) "Showerhead" means a device through which water is discharged for a shower bath.

(7) "Sink faucet" means a plumbing fitting designed for discharge into a sink. "Sink faucet" does not include utility faucets designed for use with service sinks.

(8) "Tub spout diverter" means a device to stop the flow of water into a bathtub and to divert it so that the water discharges through a showerhead.

(h) Fluorescent Lamp Ballasts.

(1) "Fluorescent lamp ballast" means a device designed to operate fluorescent lamps by providing a starting voltage and current, and limiting the current during normal operation. "Fluorescent lamp ballast for F40T12 lamp" means a ballast also having a rapid start circuit which provides power for maintaining hot cathodes independent of the power which provides lamp operating current.

(2) "Ballast efficacy factor" means the ratio of the relative light output of a ballast, expressed as a percent, to the power input, expressed in watts at the test conditions specified in section 1603(h)(2).

(3) "F40T12" means a tubular fluorescent lamp which is a nominal 40 watt lamp, 48" tube length and 1 1/2 inches in diameter. These lamps conform to the standard, ANSI C78.1-1978 (R1984).

(4) "F96T12" means a tubular fluorescent lamp which is a nominal 75 watts, 96" tube length and 1 1/2 inches in diameter. These lamps conform to the standard, ANSI C78.3-1978 (R1984).

(5) "Nominal input voltage" means an input voltage within plus 5 percent or minus 5 percent of a specified value.

(6) "Nominal lamp watts" means the wattage at which a lamp is designed to operate and for which it is therefore rated.

(7) “Operate” means able to start the same lamp at least 8 times out of 10 with a minimum of one minute between attempts when tested in accordance with the standard, ANSI C82.2-1984 at 100 percent of nominal input voltage.

(8) “Power input” means the rate of energy consumption in watts of a ballast when tested at rated values to the test conditions specified in section 1603(h)(2).

(9) “Relative light output” means the test ballast light output divided by a reference ballast light output using the same reference lamp and expressing the value as a percent. These measurements are made at the ballast's rated primary voltage.

(i) “Luminaire” means a complete lighting unit consisting of a lamp or lamps together with the parts designed to distribute the light, to position and protect the lamps and to connect the lamps to the power supply.

(j) “Household cooking gas appliance” means a gas appliance for domestic food preparation, providing at least top or surface cooking, oven cooking, or broiling. “Household cooking gas appliance” includes appliances designed primarily for commercial use but sold for domestic use.

(k) “Pool heater” means an appliance designed for heating nonpotable water at atmospheric pressure, such as water in swimming pools, therapeutic pools, and similar applications.

The following standards are incorporated by reference in section 1602.

Air-Conditioning and Refrigeration Institute (ARI)

Number	*Title*	*Year*
ANSI/ARI 310-1985	Standard for Packaged Terminal Air Conditioners	1985

Copies available from:
Air-Conditioning and Refrigeration Institute
1501 Wilson Boulevard
Arlington, VA 22209

American National Standards Institute (ANSI)

ANSI C78.1-1978 (R1984)	Dimensional and Electrical Characteristics of Fluorescent Lamps, Rapid Start Types	1984
ANSI C78.3-1978 (R1984)	Dimensional and Electrical Characteristics of Fluorescent Lamps, Instant Start and Cold Cathode Types	1984
ANSI C82.2-1984	Methods of Measurement for Fluorescent Lamp Ballasts	1984

Copies available from:
National Electric Manufacturers Association
2101 L Street, N.W.
Washington, D.C. 20037

NOTE: Authority cited: Sections 25213, 25218(e), 25402(c), and 25960, Public Resources Code. Reference: Sections 25402(c) and 25960, Public Resources Code.

§ 1603. Test Methods.

(a) Refrigerators, Refrigerator-Freezers and Freezers. The manufacturer shall cause the testing of samples of each model of refrigerator, refrigerator-freezer and freezer, to be sold in California.

(1) Fresh food refrigerated volume, freezer refrigerated volume, total refrigerated volume, energy consumption and energy factor shall be determined using the test procedure for refrigerators and freezers in 10 Code of Federal Regulations (CFR) section 430.22(a) and (b) (1991).

(2) When a refrigerator, refrigerator-freezer or freezer can be operated using either alternating current electricity or one or more other sources of primary power, the test shall be performed using alternating current electricity only.

(b) Room Air Conditioners (including Packaged Terminal Units). The manufacturer shall cause the testing of samples of each model of room air conditioner and room air-conditioning heat pump to be sold in California.

(1) The cooling capacity, heating capacity, electrical input and energy efficiency ratio (EER) of the appliance types listed in Table B-1 shall be determined using one of the test procedures as appropriate, shown in Table B-1.

Table B-1

Appliance Type	*Number*
Room air conditioners, including room air-conditioning heat pumps	Room air-conditioner test method in 10 CFR section 430.22(f) (1991)
Packaged terminal air conditioners	ARI 310-1987
Packaged terminal heat pumps	ARI 380-87

(2) The thermal efficiency of room air conditioners with heating capability shall be determined by dividing the heating capacity by the electrical input in equivalent units.

(c) Central Air Conditioners. The manufacturer shall cause the testing of samples of each model of central air conditioner and central air-conditioning heat pump to be sold in California. Air-cooled central air conditioners with rated cooling capacity less than 65,000 Btu per hour which are designed for use either at 230 volts and at other voltage(s) may be tested at 230 volts and the results applied to the other voltages. All other types of central air conditioners which are designed for use either at 208 volts and at other voltage(s) may be tested at 208 volts and the results applied to the other voltages.

(1) The cooling capacity, heating capacity, electrical input, energy efficiency ratio, seasonal energy efficiency ratio, coefficient of performance, and heating seasonal performance factor, as applicable, shall be determined using one of the test procedures as appropriate, shown in Table C-1.

Table C-1

Appliance Type	*Number*
Heat pumps, air source less than 135,000 Btu per hour.	ARI 240-81
Heat pumps, water source less than 135,000 Btu per hour.	
water source	ARI 320-86
groundwater source	ARI 325-85
Heat pumps, from 135,000 Btu per hour, heating function only.	ARI 340-86
Central air conditioners	ARI 210-81
Computer room air conditioners	ASHRAE 127-1988

The standby electrical input of air-cooled central air-conditioning heat pumps with cooling capacity of 65,000 Btu per hour or more, shall be determined by measuring the watt-hours used in a one-hour period, at 75°F plus or minus 10°F ambient conditions, starting from a cold start. The adjusted coefficient of performance shall be calculated as follows:

$$\text{Adjusted Coefficient of Performance} = \frac{\text{Rated heating capacity (watts)}}{\text{Rated electrical input (watts)} + \left[c \times \text{standby electrical input (watts)}\right]}$$

Where c = 2.5 for 47°F test and c = 0 for 17°F test.

(2) A split system central air conditioner, or a compressor-containing unit, may be sold if, and only if, the manufacturer has certified that the compressor-containing unit, when tested with the noncompressorcontaining unit most likely to represent the highest national sales volume, is in compliance with the provisions of these regulations.

(d) Spot Air Conditioners. The manufacturer shall cause the testing of samples of each model of spot air conditioner to be sold in California. The cooling energy ratio (CER) shall be determined using the standard, ANSI/ASHRAE 128-1989 Method of Rating Spot Air Conditioners.

(e) Gas Space Heaters. The manufacturer shall cause the testing of samples of each model of gas space heater to be sold in California. Models of gas space heaters intended for use either with natural gas or liquefied petroleum gases may be tested with natural gas and the results applied to both fuel types.

(1) The seasonal efficiency of gas fan-type central furnaces shall be calculated using the following formula:

$$\text{Seasonal efficiency} = \frac{\left[\text{annual fuel energy consumption (Btu)} \times \text{annual fuel utilization efficiency}\right] + \left[\text{annual auxiliary electrical energy consumption which provides heat to heated space (kWh)} \times \frac{3412 \text{ Btu}}{\text{kWh}}\right]}{\text{annual fuel energy consumption (Btu)} + \left[\text{total annual auxiliary elec-trical energy consumption (kWh)} \times \frac{10236 \text{ Btu}}{\text{kWh}}\right]}$$

The steady state efficiency, annual fuel energy consumption, annual auxiliary electrical energy consumption which provides heat to the heated space, total annual auxiliary electrical energy consumption and annual fuel utilization efficiency of gas fan type central furnaces shall be determined using the test procedure for central furnaces in 10 Code of Federal Regulations section 430.22(n) (1991).

(2) The seasonal efficiency of wall furnaces, floor furnaces and room heaters shall be calculated using the following formula:

$$\text{Seasonal Efficiency} = \frac{\left[\frac{200}{(\text{hours})} \times \frac{\text{Rated input}}{(\text{Btu/hour})} \times \text{Annual fuel utilization efficiency}\right] + \left[\frac{200}{(\text{hours})} \times \text{Maxumum electrical power which provides heat to heated space (watts)} \times \frac{3.412}{(\text{Btu/Wh})}\right] + \left[\frac{3560}{(\text{hours})} \times \text{electrical power during standby which pro-vides heat to heated space (watts)} \times \frac{3.412}{(\text{Btu/Wh})}\right]}{\left[\frac{200}{(\text{hours})} \times \frac{\text{Rated input}}{(\text{Btu/hour})}\right] + \left[\frac{200}{(\text{hours})} \times \frac{\text{Maxumum electrical power (watts)}}{(\text{Btu/Wh})} \times 10.236\right] + \left[\frac{8560}{(\text{hours})} \times \frac{\text{electrical power during standby (watts)}}{(\text{Btu/Wh})} \times 10.236\right]}$$

The rated input, annual fuel utilization efficiency, maximum electrical power input and electrical energy used during standby shall be determined using the test procedure for home heating equipment in 10 Code of Federal Regulations section 430.22(o) (1991).

(3) Thermal efficiency, annual fuel utilization efficiency and energy consumption during standby of all other gas space heaters shall be measured using one of the standards in Table E-1.

Table E-1

Effective Date	*Appliance Type*	*Number*
January 1, 1987	Boilers less than 300,000 Btu/hr	10 CFR Section 430.22(n) (1991)
	300,000 Btu/hr or more	ANSI Z21.13-1987
	Unit heaters	ANSI Z83.8-1990
	Duct furnaces	ANSI Z83.9-1986

(f) Water Heaters. The manufacturer shall cause the testing of samples of each model of water heater to be sold in California. Testing of large storage-type gas water heaters shall be by a laboratory approved by the executive director. Models of water heaters intended for use either with natural gas or liquefied petroleum gases may be tested with natural gas and the results applied to both fuel types.

(1) A laboratory approved by the Executive Director means one that documents that:

(A) it has conducted tests using the standard, ANSI Z21.10.3-1990

(B) it agrees to interpret the test method precisely as written in the standard

(C) it agrees to maintain copies of test reports for all models which are still in commercial production

(D) it agrees to allow a representative of the Commission to witness a test for thermal efficiency and standby loss not more than one time per calendar year.

(2) The recovery efficiency, standby loss, volume, and energy factor of small water heaters that are consumer products shall be measured using the test procedure for water heaters in 10 Code of Federal Regulations section 430.22(e) (1992).

(3) The recovery efficiency, standby loss, volume, and energy factor of small storage-type water heaters with volume less than 20 gallons that are not consumer products shall be measured using the standard, BSR/ASHRAE 118.2P (1992).

(4) The recovery efficiency, standby loss, volume, and energy factor of all other small storage-type water heaters that are not consumer products shall be measured using the test procedure for water heater heaters in 10 Code of Federal Regulations section 430.22(e)(1992).

(5) The thermal efficiency, standby loss and volume of large water heaters (where applicable) shall be measured using the standard, ANSI Z21.10.3-1990, modified as follows:

(A) When testing an electric storage-type water heater for standby loss using the test procedure of Section 2.9 of ANSI Standard Z21.10.3-1990, the electrical supply voltage shall be maintained within ± 1% of the center of the voltage range specified on the water heater nameplate. Also, when needed for calculations, the thermal efficiency (E_1) shall be 98%.

(B) When testing an oil water heater using the test procedures of Section 2.8 and 2.9 of ANSI Standard Z21.10.3-1990, the following modifications shall be made:

(i) A vertical length of flue pipe shall be connected to the flue gas outlet of sufficient height to establish the minimum draft specified in the manufacturer's instructions. All measurements of oil consumption shall be taken by instruments with an accuracy of ± 1% or better; and

(ii) The burner rate shall be adjusted to achieve an hourly Btu input rate within ± 2% of the manufacturer's specified input rate with the CO_2 reading as specified by the manufacturer with smoke no greater than 1 and the fuel pump pressure within ± 1% of the manufacturer's specification.

(g) Plumbing Fittings.

(1) The manufacturer shall cause the testing of samples of each model of showerhead, lavatory faucet, sink faucet, and tub spout diverter to be sold in California by a laboratory approved by the Executive Director. The method of testing shall be the standard, ANSI/ASME A112.18.1M-1989, except that, for fittings manufactured on or after March 20, 1992, only one test shall be required for showerheads and faucets and that test shall be performed at a pressure of 60 psi for faucets and 80 psi for showerheads. Two tests shall be required for tub spout diverters; at 20 psi and 60 psi. A laboratory approved by the Executive Director means one that documents that it has completed tests using the standard ANSI A112.18.1M-1989.

(2) When a flow restricting mechanism is incorporated as a component of a showerhead, it shall be mechanically retained at the point of manufacture. Mechanically retained shall mean that a pushing or pulling force of at least eight pounds is required to remove the

insert. Showerheads with the flow restrictors mechanically retained at the point of manufacture shall be tested with the flow restrictor mechanism in place. Showerheads with a radially drilled hole which is sealed when the flow restricting mechanism is in position, but which sprays water out of the side of the showerhead when the flow restricting mechanism is removed shall also be tested with the flow restricting mechanism in place. Other showerheads in which a flow restricting mechanism is not mechanically retained at the point of manufacture shall be tested with the flow restricting mechanism removed.

(h) Fluorescent Lamp Ballasts. The manufacturer shall cause the testing of samples of each model of fluorescent lamp ballast to be sold in California of the type described in subsection 1601(h).

(1) A sample of sufficient size of each model shall be tested to insure that the ballast efficacy factor certified under the provisions of Section 1606 shall be no greater than the mean of the sample or the lower 97-1/2 percent confidence limit of the true mean divided by 0.95. A minimum of four ballasts of each model shall be randomly selected and tested at least once a year.

(2) The power input, and relative light output shall be determined in accordance with the standard, ANSI C82.2-1984.

The following documents are incorporated by reference in section 1603.

a. Federal Test Methods

Code of Federal Regulations, Title 10, section 430.22 (1992)
Code of Federal Regulations, Title 10, section 430.22 (1991).

Copies available from
Superintendent of Documents
U.S. Government Printing Office
Washington, D.C. 20402

b. Air-Conditioning and Refrigeration Institute (ARI)

Number	*Title*	*Year*
ARI 210-81	Standard for Unitary Air-Conditioning Equipment	1981
ARI 240-81	Standard for Air-Source Unitary Heat Pump Equipment	1981
ARI 310-87	Standard for Packaged Terminal Air-Conditioners	1987
ARI 320-86	Standard for Water-Source Heat Pumps	1986
ARI 325-85	Standard for Ground Water-Source Heat Pumps	1985
ARI 340-86	Standard for Commercial and Industrial Unitary Heat Pump Equipment	1986
ARI 380-87	Standard for Packaged Terminal Heat Pumps	1987

Copies available from:
Air-Conditioning and Refrigeration Institute
1501 Wilson Boulevard, 6th Floor
Arlington, VA 22209-2403

c. American Society of Mechanical Engineers (ASME)

ANSI/ASME A112.18.1M-1989 Plumbing Fixture Fittings 1989

Copies available from:
American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017

d. American National Standards Institute (ANSI)

ANSI C82.2-1984 Methods of Measurement for Fluorescent Lamp Ballasts 1984

Copies available from:
National Electrical Manufacturers Association
2101 L Street, N.W.
Washington, D.C. 20037

ANSI Z21.10.3-1990	Standard for Gas Water Heaters, Volume III, Storage, With Input Ratings Above 75,000 Btu per hour, Circulating and Instantaneous Water Heaters	1990
ANSI Z21.13-1987	Standard for Gas-Fired Low Pressure Steam and Hot Water Boilers	1987
ANSI Z83.8-1990	Standard for Gas Unit Heaters	1990
ANSI Z83.9-1986	Standard for Gas Duct Furnaces	1986

Copies available from:
American Gas Association
1515 Wilson Boulevard
Arlington, VA 22209

e. American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)

BSR/ASHRAE 118.2P	Method of Testing for Rating Residential Gas, Electric, and Oil Water Heater	1992
ANSI/ASHRAE 127-1988	Method of Rating Computer and Data Processing Room Unitary Air Conditioners	1988
ANSI/ASHRAE 128-1989	Method of Rating Spot Air Conditioners	1989

Copies available from:
Refrigerating
and Air-Conditioning Engineers
1791 Tullie Circle NE
Atlanta, GA 30329

NOTE: Authority cited: Sections 25213, 25218(e) and 25402(c), Public Resources Code. Reference: Sections 25402(c), Public Resources Code; and Code of Federal Regulations, Title 10, Sections 430.22(a), (b), (e), (f), (n) and (o).

§ 1604. Efficiency Standards.

(a)(1) Refrigerators, Refrigerator-freezers and Freezers. The energy consumption of all new refrigerators, refrigerator-freezers and freezers manufactured between January 1, 1987 and December 31, 1989 and all new refrigerators, refrigerator-freezers and freezers that are not consumer products and that are manufactured on or after January 1, 1990, shall be certified not to exceed the values shown in Table A-1.

Table A-1

			Annual Energy Consumption (kWh)	
Appliance	*Defrost*	*Style*	*Effective Jan. 1, 1987*	*Effective Jan. 1, 1992*
Refrigerators	Manual[1]	All	17.3 AV + 340	13.7 AV + 267
Refrigerator-freezers less than 9 cubic feet	All	All[2]	24.7 AV + 486	17.4 AV + 344
Refrigerator-freezers 9 cubic feet or larger	Manual	All[2]	24.7 AV + 486	17.4 AV + 344
	Partial automatic	All	24.7 AV + 486	17.4 AV + 344
	Automatic	Top mounted[3] freezer	24.1 AV + 487	16.7 AV + 336
	Automatic	Side mounted freezer	30.3 AV + 535	22.4 AV + 395
	Automatic	Bottom mounted freezer	30.3 AV + 535	22.4 AV + 395
	Automatic	Top mounted freezer with through the door ice service	26.8 AV + 540	18.5 AV + 374
	Automatic	Side mounted freezer with through the door ice service	33.6 AV + 594	24.8 AV + 438
Freezers	Manual	Upright	21.4 V + 480	14.5 V + 324
	Automatic	Upright	33.7 V + 755	21.3 V + 477
	All	Chest	14.8 V + 384	10.9 V + 282

AV = adjusted volume =[1.63 X freezer volume(ft^3)] + refrigerator volume(ft^3).

V = freezer volume (ft^3).

1. This classification includes refrigerators with partial automatic defrost systems.
2. This classification includes refrigerators with automatic defrost systems.
3. This classification includes refrigerator-freezers with internally mounted freezers.

(2) The energy consumption of all new refrigerators, refrigerator-freezers and freezers that are consumer products and that are manufactured on or after January 1, 1990, is required by federal law not to exceed the values shown in Table A-2. These appliances are defined in federal regulations (10 Code of Federal Regulations Section 430.2 (1991)) as follows:

"'Electric refrigerator' means a cabinet designed for the refrigerated storage of food at temperatures above 32°F., and having a source of refrigeration requiring single phase, alternating current electric energy input only. An electric refrigerator may include a compartment for the freezing and storage of food at temperatures below 32°F., but does not provide a separate low temperature compartment designed for the freezing and storage of food at temperatures below 8°F."

"'Electric refrigerator-freezer' means a cabinet which consists of two or more compartments with at least one of the compartments designed for the refrigerated storage of food at temperatures above 32°F. and with at least one of the compartments designed for the freezing and storage of food at temperatures below 8°F. which may be adjusted by the user to a temperature of 0°F. or below. The source of refrigeration requires single phase, alternating current electric energy input only."

"'Freezer' means a cabinet designed as a unit for the freezing and storage of food at temperatures of 0°F. or below, and having a source of refrigeration requiring single phase, alternating current electric energy input only."

Table A-2

Appliance Type	*Annual Energy Consumption kWh Effective 1/1/90*	*Annual Energy Consumption kWh Effective 1/1/93*
Refrigerators and refrigerator-freezers with manual defrost	16.3 AV + 316	13.5 AV + 299
Refrigerator-freezers--partial automatic defrost	21.8 AV + 429	10.4 AV + 398
Refrigerator-freezers--automatic defrost with top-mounted freezer without through-the-door ice service*	23.5 AV + 471	16.0 AV + 355
Refrigerator-freezers--automatic defrost with side-mounted freezer without through-the-door ice service	27.7 AV + 488	11.8 AV + 501
Refrigerator-freezers--automatic defrost with bottom-mounted freezer without through-the-door ice service	27.7 AV + 488	16.5 AV + 367
Refrigerator-freezers--automatic defrost with top-mounted freezer with through-the-door ice service	26.4 AV + 535	17.6 AV + 391
Refrigerator-freezers-automatic defrost with side-mounted freezer with through-the-door ice service	30.9 AV + 547	16.3 AV + 527
Upright freezers with manual defrost	10.9 AV + 422	10.3 AV + 264
Upright freezers with automatic defrost	16.0 AV + 623	14.9 AV + 391
Chest freezers and all other freezers	14.8 AV + 223	11.0 AV + 160

* Including all refrigerators with automatic defrost
AV = Adjusted volume = [1.44 x freezer volume (ft^3)] + refrigerator volume (ft^3) for refrigerators; [1.63 x freezer volume (ft^3)] + refrigerator volume (ft^3) for refrigerator-freezers; [1.73 x freezer volume (ft^3)] for freezers

(b) Room Air Conditioners (including Packaged Terminal Units).

(1) The energy efficiency ratio and thermal efficiency (where applicable) of all new room air conditioners manufactured between November 3, 1979 and December 31, 1989 and all new room air conditioners that are not consumer products and that are manufactured on or after January 1, 1990 shall be certified to be not less than the values shown in Table B-2. The energy efficiency ratio of room air conditioners, labeled for use at more than one voltage shall be certified not to be less than the values shown at each of the labeled voltages.

Table B-2

Appliance	*Energy Efficiency Ratio*	*Thermal Efficiency*
Room air conditioners		
• those with heating capability		90%
Room air conditioners		
• those designed for use with a supply of at least 200 volts	8.2	
• other heat pumps	8.3	
• all other room air conditioners	8.7	

(2) The energy efficiency ratio and coefficient of performance, as appropriate, of all new room air conditioners that are not consumer products and that are manufactured on or after January 1, 1991 shall be certified not to be less than the values shown in Table B-3.

Table B-3

Category	*Rating Condition (Outdoor Temp.°F)*	*Jan. 1, 1991*	*Jan. 1, 1992*
Packaged terminal air conditioners and packaged terminal heat pumps[b] (cooling mode)	Standard Rating (95db)	10.0-(.19 x Cap. /1000) EER	10.0-(.16 x Cap. /1000) EER
	Low Temp. Rating (82db)[a]	12.0-(.23 x Cap. /1000) EER	12.2-(.20 x Cap. /1000) EER
Packaged terminal heat pumps (heating mode)	Standard Rating (47db/43wb)	1.3 + 0.16 (EER_{95} Above) COP	

a. For multi-capacity equipment the minimum performance shall apply to each capacity step provided and allowed by the controls.
b. If the unit's capacity is less than 7000 Btu/h, use 7000 Btu/h in the calculation. If the unit's capacity is greater than 15000 Btu/h, use 15000 Btu/h in the calculation.
c. db = dry bulb temperature
d. wb = wet bulb temperature
e. EER = energy efficiency ratio
f. COP = coefficient of performance
g. Cap. = rated cooling capacity (Btu/hour)

(3) The energy efficiency ratio of all new room air conditioners that are consumer products and that are manufactured on or after January 1, 1990 is required by federal law to be not less than the values shown in Table B-4. These appliances are defined in federal regulations (10 Code of Federal Regulations Section 430.2 (1991)) as follows:

"'Room air conditioner' means a consumer product, other than a 'packaged terminal air conditioner', which is powered by a single phase electric current and which is an encased assembly designed as a unit for mounting in a window or through the wall for the purpose of providing delivery of conditioned air to an enclosed space. It includes a prime source of refrigeration and may include a means for ventilating and heating."

Table B-4

Room Air Conditioner Type	*Energy Efficiency ratio*
Without reverse cycle and with louvered sides less than 6,000 Btu	8.0
Without reverse cycle and with louvered sides 6,000 to 7,999 Btu	8.5
Without reverse cycle and with louvered sides 8,000 to 13,999 Btu	9.0
Without reverse cycle and with louvered sides 14,000 to 19,999 Btu	8.8
Without reverse cycle and with louvered sides 20,000 and more Btu	8.2
Without reverse cycle and without louvered sides less than 6,000 Btu	8.0
Without reverse cycle and without louvered sides 6,000 to 7,999 Btu	8.5
Without reverse cycle and without louvered sides 8,000 to 13,999 Btu	8.5
Without reverse cycle and without louvered sides 14,000 to 19,999 Btu	8.5
Without reverse cycle and without louvered sides 20,000 and more Btu	8.2
With reverse cycle and with louvered sides	8.5
With reverse cycle, without louvered sides	8.0

(c) Central Air Conditioners.

(1) The energy efficiency ratio, seasonal energy efficiency ratio, coefficient of performance, and/or heating seasonal performance factor, as applicable, of all new central air conditioners manufactured on or after the date specified in Table C-2 shall be certified to be not less than the values shown. The energy efficiency ratio, seasonal energy efficiency ratio, coefficient of performance, and/or heating seasonal performance factor, as applicable, of central air conditioners, including heat pumps, labeled for use at more than one voltage shall be certified not to be less than the values shown at each of the labeled voltages.

Table C-2

Effective Date	*Appliance*	*Energy Efficiency Ratio*	*Seasonal Energy Efficiency Ratio*	*Coefficient of Performance*	*Heating Seasonal Performance Factor*
January 1, 1988	Computer room air conditioners*				
	air cooled less than 65,000 Btu per hr	8.3	-	-	-
	water cooled less than 65,000 Btu per hour	8.1	-	-	-
	air cooled 65,000 to 135,000 Btu per hour	7.7	-	-	-
	water cooled 65,000 to 135,000 Btu per hour	8.4	-	-	-
January 1, 1984	Other central air Conditioners 65,000 to 135,000 Btu per hour (including heat pumps)				
	air source	8.2	-	-	-
	water source	9.2	-	-	-
	evaporative source	9.2	-	-	-
January 1, 1988	Other central air Conditioners less than 65,000 Btu per hour				
	air-cooled (excluding heat pumps)	-	8.9	-	-
	air source heat pumps	-	8.9	-	6.6
	water cooled (excluding heat pumps)	8.0	-	-	-
	water source heat pumps	9.9	-	3.2	-

*When tested using the standard, ANSI/ASHRAE 127-1988

(2) The adjusted coefficient of performance of all new central air-conditioning heat pumps manufactured on or between the dates specified in Table C-3 shall be certified not to be less than the values shown. The adjusted coefficient of performance of central air conditioners labeled for use at more than one voltage shall be certified not to be less than the values shown at each of the labeled voltages.

Table C-3

Effective Date	*Appliance*	*Adjusted Coefficient of Performance Air Source*		*Coefficient of Performance Water Source*
		47° outdoor temp.	17° outdoor temp.	70°
November 3, 1979 through December 31, 1990	Central air-conditioning heat pumps not less than 65,000 Btu/hour	2.5	1.5	2.5

(3) The energy efficiency ratio, seasonal energy efficiency ratio, coefficient of performance, integrated part load value, and heating seasonal performance factor as applicable, of all new central air conditioners that are not consumer products and that are manufactured on or after the dates specified in Tables C-4, C-5, C-6, and C-7 shall be certified to be not less than the values shown.

Table C-4

	Category	*Phase*	*Sub-Category & Rating Condition (Outdoor Temp.°F)*	*Jan. 1, 1991*	*Jan. 1, 1992*	*Jan. 1, 1993*
Air-cooled central air conditioners and heat pumps (cooling mode)	<65,000 BTU/HR Cooling Capacity	All	Seasonal Rating (split system) Seasonal Rating (single package)	8.9 SEER 8.9 SEER	10.0 SEER 8.9 SEER	10.0 SEER 9.9 SEER
	≥65,000 <135,000 BTU/HR Cooling Capacity	All	Standard Rating (95 db) Integrated Part Load Value (80db)	8.3 EER 7.3 IPLV	8.9 EER 8.3 IPLV	8.9 EER 8.3 IPLV
Air-cooled central air-conditioning heat pumps (heating mode)	<65,000 BTU/HR Cooling Capacity	All	Seasonal Rating (split system) Seasonal Rating (single package)	6.6 HSPF 6.6 HSPF	6.8 HSPF 6.6 HSPF	6.8 HSPF 6.6 HSPF
	≥65,000 <135,000 BTU/HR Cooling Capacity	All	High Temp. Rating (47db/43 wb) Low Temp. Rating (17db/15wb)	2.8 COP 1.9 COP	3.0 COP 2.0 COP	3.0 COP 2.0 COP

db = dry bulb temperature
wb = wet bulb temperature
SEER = seasonal energy efficiency ratio
IPLV = integrated part load value
EER = energy efficiency ratio
HSPF = heating seasonal performance factor
COP = coefficient of performance

Table C-5

Category		*Rating Condition °F* *Indoor Temp. Outdoor Temp.*	*Jan. 1, 1991*	*Jan. 1, 1992*	*Jan. 1, 1993*
Evaporatively-Cooled Unitary Air Conditioners	<65,000 BTU/HR Cooling Capacity	Standard Rating 80 db/67wb 95db/75wb	9.0 EER	9.3 EER	9.3 EER
		Integrated Part Load Value (80db/67wb)	8.0 IPLV	8.5 IPLV	8.5 IPLV
	≥65,000 <135,000 BTU/HR Cooling Capacity	Standard Rating 80 db/67wb 95db/75wb	9.5 EER	10.5 EER	10.5 EER
		Integrated Part Load Value (80db/67wb)	8.5 IPLV	9.7 IPLV	9.7 IPLV

db = dry bulb temperature
wb = wet bulb temperature
EER = energy efficiency ratio
IPLV = integrated part load value

Table C-6

Category		*Rating Condition °F* *Indoor Temp.*	*Entering Water*	*Jan. 1, 1991*	*Jan. 1, 1992*	*Jan. 1, 1993*
Water-Source Heat Pumps	<65,000 BTU/HR Cooling Capacity	Standard Rating 80db/67wb	85	9.0 EER	9.3 EER	10.0 EER
		Low Temperature Rating 80db/67wb	75	9.7 EER	10.2 EER	10.2 EER
	≥65,000 <135,000 BTU/HR Cooling Capacity	Standard Rating 80db/67wb	85	9.5 EER	10.5 EER	10.5 EER
Groundwater-Cooled Heat Pumps	<135,000 BTU/HR Cooling Capacity	Standard Rating	70	10.0 EER	11.0 EER	11.0 EER
		Low Temperature Rating	50	10.5 EER	11.5 EER	11.5 EER
Water-Cooled Unitary Air Conditioners	<65,000 BTU/HR Cooling Capacity	Standard Rating 80db/67wb	85	9.0 EER	9.3 EER	9.3 EER
		Integrated Part Load Value	75	8.0 IPLV	8.3 IPLV	8.3 IPLV
	≥65,000 <135,000 BTU/HR Cooling Capacity	Standard Rating 80db/67wb	85	9.5 EER	10.5 EER	10.5 EER

db = dry bulb temperature
wb = wet bulb temperature
EER = energy efficiency ratio
IPLV = integrated part load value

Table C-7

	Rating Condition °F [a]	*Jan. 1, 1991*	*Jan. 1, 1992*	*Jan. 1, 1993*
Water-Source Heat Pumps	Standard Rating			
	70 Entering Water[b]	3.3 COP	3.8 COP	3.8 COP
Groundwater-Source Heat Pumps	High Temperature Rating			
	70 Entering Water[b]	3.2 COP	3.4 COP	3.5 COP
	Low Temperature Rating			
	50 Entering Water[b]	2.8 COP	3.0 COP	3.0 COP

COP = Coefficient of performance
a Air entering indoor section 70 db/60 wb (max.)
b Water Flow Rate Per Mfg. Spec.

(4) The seasonal energy efficiency ratio of all new central air conditioners that are consumer products and that are manufactured on or after the dates shown in Table C-8, and the heating seasonal performance factor of all new central air-conditioning heat pumps that are consumer products and that are manufactured on or after the dates shown in Table C-8 are required by federal law to be not less than the values shown (10 Code of Federal Regulations Section 430.32(c) (1991)).

Table C-8

Effective Date	*Type*	*Seasonal Energy Efficiency Ratio*	*Heating Seasonal Performance Factor*
January 1, 1992	Split system	10.0	6.8
January 1, 1993	Single package	9.7	6.6

These appliances are defined in federal regulations (10 Code of Federal Regulations Section 430.2 (1991)) as follows:

> "'Central air conditioner' means a product, other than a packaged terminal air conditioner, which is powered by single phase electric current, air cooled, rated below 65,000 Btu per hour, not contained within the same cabinet as a furnace, the rated capacity of which is above 225,000 Btu per hour, and is a heat pump or a cooling unit only."

(d) Spot Air Conditioners

[Reserved]

(e) Gas Space Heaters.

(1) The seasonal efficiency of all new fan type gas central furnaces manufactured between January 1, 1988 and December 31, 1991, and all new fan type gas furnaces that are not consumer products and that are manufactured on or after January 1, 1992 shall be certified not to be less than the values shown in Table E-2.

Table E-2

Appliance	*Seasonal Efficiency*
Gas fan type central furnaces	
weatherized	71%
nonweatherized	72%

(2) The seasonal efficiency of all new gas wall furnaces, floor furnaces and room heaters manufactured between January 1, 1987 and December 31, 1989 and all new wall furnaces, floor furnaces and room heaters that are not consumer products and that are manufactured on or after January 1, 1990 shall be certified not to be less than the values shown in Table E-3.

Table E-3

Appliance	*Seasonal Efficiency*
Wall	
Fan type	
up to 42,000 Btu/hour	73%
over 42,000 Btu/hour	74%
gravity type	
up to 10,000 Btu/hour	59%
over 10,000 Btu/hour up to 12,000 Btu/hour	60%
over 12,000 Btu/hour up to 15,000 Btu/hour	61%
over 15,000 Btu/hour up to 19,000 Btu/hour	62%
over 19,000 Btu/hour up to 27,000 Btu/hour	63%
over 27,000 Btu/hour up to 46,000 Btu/hour	64%
over 46,000 Btu/hour	65%
Floor	
up to 37,000 Btu/hour	56%
over 37,000 Btu/hour	57%
Room	
up to 18,000 Btu/hour	57%
over 18,000 Btu/hour up to 20,000 Btu/hour	58%
over 20,000 Btu/hour up to 27,000 Btu/hour	63%
over 27,000 Btu/hour up to 46,000 Btu/hour	64%
over 46,000 Btu/hour	65%

(3) The annual fuel utilization efficiency of all new boilers with rated capacity less than 300,000 Btu/hour manufactured between January 1, 1987 and December 31, 1990 shall be certified not to be less than the values shown in Table E-4, and the energy consumption during standby (with the exceptions noted below) shall be certified not to exceed the values shown.

Table E-4

Appliance	*Energy Consumption During Standby*	*Annual Fuel Utilization Efficiency*
Boilers with capacity under 300,000 Btu/hour		
weatherized,		
without continuous pilot	10 watts*	63%
with continuous pilot	147 watts*	61%
nonweatherized,		
without continuous pilot	10 watts*	65%
with continuous pilot	147 watts*	63%

* For boilers designed expressly for use with liquefied petroleum gases, the maximum energy consumption during standby shall not exceed 293 watts.

(4) The annual fuel utilization efficiency and thermal efficiency as appropriate of all new central gas furnaces and gas boilers which are not consumer products and all new duct furnaces and unit heaters that are manufactured on or after the dates shown shall be certified to be not less than the values shown in Tables E-5, E-6 and E-7.

Table E-5

Category	*Rating Condition*	*January 1, 1987*	*January 1, 1991*	*January 1, 1992*
Boilers				
<300,000 BTU/HR	Seasonal Rating (AFUE)			
	Steam boilers	-	68%	75%
	Others	-	68%	80%
Boilers				
≥300,000 BTU/HR	Max. Rated Capacity[a] Combustion Efficiency	75%	75%	80%
	Min. Rated Capacity[a] Combustion Efficiency	-	72%	80%
	Energy Consumption During Standby[b]	147 watts	147 watts	147 watts

a provided and allowed by the controls

b For boilers designed expressly for use with liquefied petroleum gases, the energy consumption during standby shall not exceed 352 watts.

Table E-6

	Category	*Rating Condition*	*January 1, 1991*	*January 1, 1992*
Central Furnaces	<225,000 BTU/HR	Seasonal Rating (AFUE)	68%	78%
	≥225,000 BTU/HR	Max. Rated Cap.[a] Steady State (Thermal Efficiency)	75%	80%
		Min. Rated Cap.[a] Steady State (Thermal Efficiency)	72%	78%

a Provided and allowed by the controls

Table E-7

Category	*Rating Condition*	*December 22, 1983*	*January 1, 1991*	*January 1, 1992*
Duct Furnaces	Max. Rated Cap.[a] Steady State (Thermal Efficiency)	80%	80%	80%
	Min. Rated Cap.[a] Steady State (Thermal Efficiency)	-	72%	75%
	Energy Consumption During Standby[b]	10 watts	10 watts	10 watts
Unit Heaters	Max. Rated Cap.[a] Steady State (Thermal Efficiency)	80%	80%	80%
	Min. Rated Cap.[a] Steady State (Thermal Efficiency)	-	72%	74%
	Energy Consumption During Standby[b]	10 watts	10 watts	10 watts

a Provided and allowed by the controls

b For duct furnaces and unit heaters designed expressly for use with liquefied petroleum gases, the energy consumption during standby shall not exceed 147 watts.

(5) The annual fuel utilization efficiency of all new gas wall furnaces, floor furnaces, room heaters, furnaces and boilers that are consumer products and that are manufactured on or after the dates shown in Table E-8 is required by federal law not to be less than the values shown. These appliances are defined in federal regulations (10 Code of Federal Regulations, section 430.2 (1991)) as follows:

"'Furnace' means a product which utilizes only single-phase electric current, or single-phase electric current or DC current in conjunction with natural gas, propane, or home heating oil, and which--

(a) Is designed to be the principal heating source for the living space of a residence;
(b) Is not contained within the same cabinet with a central air conditioner whose rated cooling capacity is above 65,000 Btu per hour;
(c) Is an electric central furnace, electric boiler, forced-air central furnace, gravity central furnace, or low pressure steam or hot water boiler; and
(d) Has a heat input rate of less than 300,000 Btu per hour for electric boilers and low pressure steam or hot water boilers and less than 225,000 Btu per hour for forced-air central furnaces, gravity central furnaces, and electric central furnaces ... ."

"'Home heating equipment, not including furnaces' means vented home heating equipment and unvented home heating equipment."

"'Vented home heating equipment' or 'vented heater' means a class of home heating equipment, not including furnaces, designed to furnish warmed air to the living space of a residence, directly from the device, without duct connections (except that boots not to exceed 10 inches beyond the casing may be permitted) and includes: vented wall furnace, vented floor furnace, and vented room heater."

"'Vented wall furnace' means a self-contained vented heater complete with grilles or the equivalent, designed for incorporation in, or permanent attachment to, a wall of a residence and furnishing heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing."

"'Vented floor furnace' means a self-contained vented heater suspended from the floor of the space being heated, taking air for combustion from outside this space. The vented floor furnace supplies heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing."

"'Vented room heater' means a self-contained, free standing, nonrecessed, vented heater for furnishing warmed air to the space in which it is installed. The vented room heater supplies heated air circulated by gravity or by a fan directly into the space to be heated through openings in the casing."

"'Unvented home heating equipment' means a class of home heating equipment, not including furnaces, used for the purpose of furnishing heat to a space proximate to such heater directly from the heater and without duct connections and includes electric heaters and unvented gas and oil heaters."

"'Unvented gas heater' means an unvented, self-contained, free-standing, nonrecessed gas-burning appliance which furnishes warm air by gravity or fan circulation."

Table E-8

Effective Date	*Appliance Type*	*Annual Fuel Utilization Efficiency (percent)*
January 1, 1990	Gas wall fan type up to 42,000 Btu/hr	73
	Gas wall fan type over 42,000 Btu/hr	74
	Gas wall gravity type up to 10,000 Btu/hr	59
	Gas wall Gravity type over 10,000 Btu/hr up to 12,000 Btu/hr	60
	Gas wall gravity type over 12,000 Btu/hr up to 15,000 Btu/hr	61
	Gas wall gravity type over 15,000 Btu/hr up to 19,000 Btu/hr	62
	Gas wall gravity type over 19,000 Btu/hr up to 27,000 Btu/hr	63
	Gas wall gravity type over 27,000 Btu/hr up to 46,000 Btu/hr	64
	Gas wall grvity type over 46,000 Btu/hr	65
	Gas floor up to 37,000 Btu/hr	56
	Gas floor over 37,000 Btu/hr	57
	Gas room up to 18,000 Btu/hr	57
	Gas room over 18,000 Btu/hr up to 20,000 Btu/hr	58
	Gas room over 20,000 Btu/hr up to 27,000 Btu/hr	63
	Gas room over 27,000 Btu/hr up to 46,000 Btu/hr	64
	Gas room over 46,000 Btu/hr	65
September 1, 1990	Mobile home furnace	75
January 1, 1992	Furnace (excluding mobile home furnaces, furnaces with an input rate less than 45,000 Btu/hour, and boilers)	78
	Gas steam boiler	75
	Other boilers	80

(f) Water Heaters

(1) The recovery efficiency or thermal efficiency (as applicable) of all new water heaters manufactured between May 21, 1981 and December 31, 1989 shall be certified to be not less than the values shown in Table F-1 and the standby loss shall be certified not to exceed the values shown.

Table F-1

Appliance	*Standby Loss*	*Recovery Efficiency*	*Thermal Efficiency*
Water heaters			
Electric, mobile home storage type	4 watts per square foot	no requirement	no requirement
Electric, all other storage type	35 watts or 4 watts per square foot, whichever is larger	no requirement	no requirement
Gas, mobile home with storage capacity of			
less than 25 gallons	7.5 percent	75 percent	no requirement
25 up to 35 gallons	7.0 percent	75 percent	no requirement
35 gallons or more	6.0 percent	75 percent	no requirement
Gas, small storage type, other than mobile home type			
(basic standard)	$2.3 + \frac{67}{V}$ percent	76 percent	no requirement
(alternative standard at manufacturer's option)	$1.3 + \frac{67}{V}$ percent	74 percent	no requirement
Gas, large storage type	$2.3 + \frac{67}{V}$ percent	no requirement	76 percent
Gas, all others	no requirement	no requirement	75 percent

Where V = volume in gallons

(2) The thermal efficiency of all new large water heaters manufactured on or after the dates shown in Tables F-2 and F-3 shall be certified to be not less than the values shown and the standby loss shall be certified not to exceed the values shown.

Table F-2

Effective Date	*Large Water Heater Type*	*Standby Loss*	*Thermal Efficiency*
1/1/90	Gas storage type	2.3 + 67/V percent	76%
through	Gas instantaneous type	no requirement	75%
8/31/92	Electric storage type	4.0 watts per square foot, or 35 watts whichever is larger	no requirement
	Oil	no requirement	no requirement

Where V = volume in gallons

Table F-3

Effective Date	Type	Fuel	Input Rating Btu/hr	Volume (gallons)	Input to Volume Ratio (Btuh/gal)	Thermal Efficiency %	Standby Loss [1, 2] %/hr
Sept. 1, 1992	all	gas	≤155,000	all	<4,000	78%	1.3+114/V
			>155,000	all	<4,000	78%	1.3+95/V
				< 10	≥ 4,000	80%	no requirement
				≥ 10	≥ 4,000	77%	2.3+67/V
July 1, 1993	all	gas	≤155,000	all	<4,000	78%	1.3+114/V
			>155,000	all	<4,000	78%	1.3+95/V
				<10	≥ 4,000	80%	no requirement
				≥ 10	≥ 4,000	77%	2.3+67/V
	storage	electric	all	all	all	no requirement	0.30+27/V
	all	oil	≤155,000	all	<4,000	78%	1.3+114/V
			>155,000	all	<4,000	78%	1.3+95/V
				<10	≥ 4,000	80%	no requirement
				≥ 10	≥ 4,000	77%	2.3+67/V

1. Where V = volume in gallons

2. Storage-type water heaters with volumes exceeding 140 gallons need not meet the standby loss requirement if they are thermally insulated to at least R-12.5 and if a standing pilot light is not used.

(3) The energy factor of all new small water heaters manufactured on or after January 1, 1990 that are not consumer products shall be certified to be not less than the values shown in Table F-4.

Table F-4

Water Heater Type	*Volume*	*Energy Factor*
Gas	≥ 20 gallons	0.62 - (.0019 X V)
Electric(including heat pump)	≥ 20 gallons	0.93 - (.00132 X V)
Oil	≥ 20 gallons	0.59 - (.0019 X V)
All	< 20 gallons	no requirement

Where V = volume in gallons

(4) The energy factor of all new water heaters that are consumer products and that are manufactured on or after January 1, 1990 is required by federal law to be not less than the values shown in Table F-5. These appliances are defined in federal regulations (10 Code of Federal Regulations section 430.2 (1992)) as follows:

"'Water heater' means a product which utilizes oil, gas, or electricity to heat potable water for use outside the heater upon demand, including:

(a) Storage type units which heat and store water at a thermostatically controlled temperature, including gas storage water heaters with an input of 75,000 Btu per hour or less, oil storage water heaters with an input of 105,000 Btu per hour or less, and electric storage water heaters with an input of 12 kilowatts or less;

(b) Instantaneous type units which heat water but contain no more than one gallon of water per 4,000 Btu per hour of input, including gas instantaneous water heaters with an input of 200,000 Btu per hour or less, oil instantaneous water heaters with an input of 210,000 Btu per hour or less, and electric instantaneous water heaters with an input of 12 kilowatts or less; and

(c) Heat pump type units, with a maximum current rating of 24 amperes at a voltage no greater than 250 volts, which are products designed to transfer thermal energy from one temperature level to a higher temperature level for the purpose of heating water, including all ancillary equipment such as fans, storage tanks, pumps, or controls necessary for the device to perform its function."

Table F-5

Water Heater Type	*Energy Factor through April 14, 1991*	*Energy Factor effective April 15, 1991*
Gas	0.62 - (.0019 x V)	0.62 - (.0019 X V)
Electric (including heat pump)	0.95 - (.00132 x V)	0.93 - (.00132 X V)
Oil	0.59 - (.0019 x V)	0.59 - (.0019 X V)

Where V = Rated volume in gallons

(g) Plumbing Fittings. The maximum flow rate of all new showerheads, lavatory faucets, sink faucets, and tub spout diverters manufactured on or after the dates specified in Table G, shall be certified not to exceed the values shown.

Table G

Effective Date	*Plumbing Fitting*	*Maximum Flow Rate*
December 22, 1978	Showerheads	2.75 gpm
	Lavatory Faucets	2.75 gpm
	Sink Faucets	2.75 gpm
March 20, 1992	Showerheads	2.5 gpm
	Lavatory Faucets	2.2 gpm
	Sink Faucets	2.2 gpm
	Tub spout diverter (new)	0.1 gpm
	Tub spout diverter (after 15000 cycles of diverting)	0.3 gpm

(h) Fluorescent Lamp Ballasts.

(1) The ballast efficacy factor of fluorescent lamp ballasts manufactured between June 2, 1983 and December 31, 1989 shall be certified to be not less than the values shown in Table H.

Table H

Application for Operation of	*Ballast Input Voltage*	*Total Nominal Lamp Watts*	*Ballast Efficacy Factor*
one F40T12	120	40	1.805
	277	40	1.805
two F40T12	120	80	1.060
	277	80	1.050
two F96T12	120	150	0.570
	277	150	0.570

(2) The ballast efficacy factor of fluorescent lamp ballasts manufactured on or after January 1, 1990 is required by federal law (10 Code of Federal Regulations, section 430.32(m)(1991)) to be not less than the values shown in Table H.

NOTE: Authority cited: Sections 25213, 25218(e) and 25402(c), Public Resources Code. Reference: Section 25402(c), Public Resources Code.

§1605. Constant Burning Pilots.

(a) New gas appliances of the following types manufactured before the dates shown and all those that are not consumer products and were manufactured on or after the dates shown and all new gas pool heaters shall not be sold or offered for sale if they are equipped with constant burning pilots:

(1) Fan type central furnaces designed solely for installation in mobile homes (September 1, 1990)
(2) Other fan type central furnaces (January 1, 1992)
(3) Household cooking appliances (January 1, 1990)
(4) Fan type wall furnaces (January 1, 1990)
(5) Pool heaters

This restriction shall not apply to:

(1) Appliances designed to burn only liquefied petroleum gases
(2) Appliances designed expressly for use in mobile homes and recreational vehicles
(3) Cooking appliances which do not have an electrical line voltage supply connection

(b) A restriction on selling certain appliances with constant burning pilot is included in federal regulations for gas cooking appliances that are consumer products and that do not have an electrical line voltage supply connection.

NOTE: Authority cited: Sections 25213, 25218(e), 25402(c), and 25960, Public Resources Code. Reference: Sections 25402(c) and 25960, Public Resources Code.

§1606. Certification.

(a) No new appliance described in subsections 1601(a) through (h), which was manufactured on or after the effective dates listed in section 1604, shall be sold or offered for sale in California, which is not certified by its manufacturer to be in compliance with the provisions of these regulations. For the following types of appliance, this requirement applies only to those which are not consumer products:

(1) refrigerators, refrigerator-freezers and freezers
(2) room air conditioners
(3) wall furnaces, floor furnaces and room heaters
(4) water heaters
(5) fluorescent lamp ballasts

(b) The manufacturer (manufacturer, private brand packager or reassembler in the case of plumbing fittings) shall submit a certification statement to the executive director for each model, containing the following information, except as provided in subsections (c) and (d):

(1) Name and address of manufacturer.
(2) Type of appliance.
(3) Brand name.
(4) Model number, as it appears on the appliance name plate.
(5) Name and address of laboratory where test for efficiency was performed.
(6) Date of test for efficiency.
(7) Information on the applicable form in Table J (incorporated by reference).

Table J

Number	*Date*	*Title*
CEC 88	Dec 1989	Refrigerator and Freezer Certification Form
CEC 150	Sept 1988	Commercial Refrigerator and Freezer Certification Form
CEC 96	Dec 1989	Room Air Conditioner Certification Form
CEC 93	Nov 1986	Central Air Conditioner and Heat Pump Certification Form
CEC 151	Aug 1989	Computer Room Air Conditioner Certification Form
CEC 165	Dec 1989	Spot Air Conditioner Certification Form
CEC 92	Feb 1987	Gas and Oil Fan Type Central Furnace Certification Form
CEC 94a	Dec 1989	Gas Gravity Type Wall and Floor Furnace, Room Heater, Unit Heater and Duct Furnace Certification Form
CEC 94b	Dec 1989	Gas Fan Type Wall and Floor Furnace Certification Form
CEC 97	Jan 1987	Boiler Certification Form
CEC 89a	Dec 1991	Small Gas or Oil Storage Type Water Heater Certification Form
CEC 89b	Dec 1991	Large Gas or Oil Storage Type Water Heater Certification Form
CEC 89d	Dec 1991	Small Gas or Oil Instantaneous Type Water Heater Certification Form
CEC 89e	Dec 1991	Large Gas or Oil Instantaneous Type Water Heater Certification Form
CEC 90a	Dec 1991	Small Electric Storage Type and Heat Pump Type Water Heater Certification Form
CEC 90b	May 1991	Large Electric Storage Type Water Heater Certification Form
CEC 95	Oct 1986	Plumbing Fittings Certification Form
CEC 111	Dec 1989	Fluorescent Ballast Certification Form
CEC 118	Apr 1987	Luminaire Certification Form

(8) Sufficient information about the model number or other identification by which the date of manufacture can be readily ascertained.

(9) For refrigerators, refrigerator-freezers and freezers certified under 1601(a)(6); large storage-type water heaters; and plumbing fittings: a test report from a laboratory approved by the executive director.

(10) A declaration that the appliance model complies with sections 1601-1608 of Title 20 of the California Code of Regulations; provided, however, that this requirement does not apply to any of the following types of appliance which are consumer products:

(A) refrigerators, refrigerator-freezers and freezers
(B) room air conditioners
(C) wall furnaces, floor furnaces and room heaters
(D) water heaters
(E) fluorescent lamp ballasts

(c) In lieu of submitting to the Commission the detailed information specified in Subsection 1606(b), a manufacturer, private brand packager, or reassembler of plumbing fittings may submit the same or similar information to an industry or governmental certification agency, providing that the certification agency meets the following criteria:

The agency must conduct a testing, listing, and labeling program for the type of plumbing fitting involved.

The managing committee of the program must include persons representing manufacturers of plumbing fittings, users of plumbing fittings, and general interest.

The formal procedures of the program must include means of obtaining consensus (as defined by the American National Standards Institute) on all aspects of the program. They must also include formal procedures for appealing any action or inaction of the program.

The agency must agree to allow a representative of the Commission to participate in managing committee meetings and witness testing if so requested.

The agency must agree to make available to the Commission adequate data for the Commission to publish directories of plumbing fittings which comply with the requirements of these regulations.

The agency must also agree to take action to follow up individual complaints of inaccurate listing of plumbing fittings within 30 days.

Any application from an agency claiming to meet the criteria of this subsection shall be the subject of a public hearing before being ruled upon by the executive director.

(d) The manufacturer of luminaires of the type described in subsection 1601(i) shall submit a certification statement to the executive director, containing a statement that only luminaires which contain ballasts whose performance has been certified to the U.S. Department of Energy will be sold or offered for sale in California.

(e) Every certification statement shall be dated and signed by the manufacturer (the manufacturer, private brand packager or reassembler in the case of plumbing fittings) attesting to its truth and accuracy under penalty of perjury. Where the manufacturer is either a corporation or a business association, the certification statement shall be dated, signed and attested to by an officer thereof.

(f) Within 45 days after receipt of a certification statement, the Executive Director shall forward to the manufacturer (the manufacturer, private brand packager, or reassembler in the case of plumbing fittings) an acknowledgement that the statement has been received and stating whether it is complete and accurate on its face.

For purposes of subsection (a), certification of a model shall be deemed to occur upon forwarding of the acknowledgement by the Executive Director. If acknowledgement is not forwarded in a timely manner, certification shall be deemed to occur on the 45th day after receipt of the certification statement.

(g) Lavatory faucets and sink faucets which are certified to comply with the provisions of these regulations when flow restricting aerators are attached, shall only be sold with the flow restricting aerators attached.

NOTE: Authority cited: Sections 25213, 25218(e) and 25402(c), Public Resources Code. Reference: Sections 25402(c) and 25960, Public Resources Code.

§1607. Identification of Complying Appliances.

(a) Sufficient information shall be shown on the outside of the shipping carton for any appliance described in subsections 1601(a) through 1601(i) (and unit carton in the case of plumbing fittings) to permit the determination of whether the appliance complies with the requirements of this article.

(b) The markings shown in Table G-2, or the actual tested flow rate, or other marking approved by the Executive Director, shall additionally be marked conspicuously on each plumbing fitting except metering faucets sold or offered for sale either by means of a permanent marking on the fitting or on a label attached to the fitting, and also upon the unit carton in which the fitting is offered for retail sale.

Table G-2

Effective date	*Fitting type*	*Marking*
through April 19, 1992	Showerheads and faucets	3.0 gpm max
April 20, 1992	Showerheads	2.5 gpm max
	Faucets	2.2 gpm max

(c) The executive director or his designee may require additional information if necessary to permit determination of compliance.

(d) The manufacturer's name or brand name shall appear on each appliance.

(e) Any appliance described in subsections 1601(a) through (h), excluding (g), which is manufactured on or after July 1, 1984, and for which section 1604 specifies an effective date that is prior to July 1, 1984, may not be sold or offered for sale unless the date of manufacture is permanently displayed in an accessible place on that appliance.

(f) Any appliance described in subsections 1601(a) through (h), excluding (g), which is manufactured on or after July 1, 1984, and for which Section 1604 specifies an effective date that is subsequent to July 1, 1984, may not be sold or offered for sale unless the month and year of manufacture, or the week and year if identified as such on the appliance, is permanently displayed in an accessible place on that appliance.

(g) An accessible place is a place that can be easily seen without the need for tools to remove any covering when the appliance is on display in a store or when it is installed.

(h) Large water heaters that comply with the standards in Table F-3 shall be marked on the nameplate "Complies with the requirements of Addendum 90.1b to ASHRAE/IES 90.1-1989." Other large water heaters that comply with the standards in Table F-2 shall be marked on the nameplate "Complies with the 1989 requirements of ASHRAE/IES 90.1-1989".

NOTE: Authority cited: Sections 25213, 25218(e), and 25402(c), Public Resources Code. Reference: Sections 25402(c), Public Resources Code.

§1608. Enforcement.

(a) The executive director shall cause periodic inspections to be made of manufacturers, distributors or retailers of the new appliances described in section 1601, including appliances that have been or are to be installed by contractors or builders at building sites, in order to determine their compliance with these regulations.

(b) Notwithstanding the provisions of section 1606 of these regulations, the executive director shall have authority to challenge the efficiency test results provided by the manufacturer, private brand packager, or reassembler and cause the appliance model to be retested at any voltage for which it is labeled. The executive director shall also have authority to test refrigerators, refrigerator-freezers, freezers, large storage-type water heaters, and plumbing fittings being offered for sale in California whose performance has not been certified by the manufacturer.

(c) The test would involve one unit selected by the executive director.

(1) If the performance of the appliance falls within the tolerances listed below, no further action is necessary, and the Commission will pay the cost of testing.

Table K

Appliance	*Characteristic*	*Tolerance Limits (percent of certified value)*
Refrigerators, refrigerator-freezers, freezers	Volume	Not less than 98.5 percent
	Energy consumption	Not more than 110 percent
Room air conditioners (including heat pumps and packaged terminal air conditioners)	Cooling capacity	Not less than 95 percent
	Energy consumption when cooling	Not more than 110 percent
	Heating capacity	Not less than 95 percent
	Energy consumption when heating	Not more than 110 percent
Central air conditioners (including heat pumps)	Cooling capacity	Not less than 95 percent
	Energy efficiency ratio	Not less than 95 percent
	Seasonal energy efficiency ratio	Not less than 95 percent
Central air conditioners heat pumps, when heating	Heating capacity	Not less than 95 percent
	Coefficient of performance	Not less than 95 percent
	Heating seasonal performance factor	Not less than 95 percent
Central gas furnaces	Seasonal efficiency	Not less than 95 percent
	Steady state efficiency	Not less than 100 percent
Other gas space heaters	Seasonal efficiency	Not less than 95 percent
	Annual fuel utilization efficiency	Not less than 95 percent
	Thermal efficiency	Not less than 100 percent
	Energy consumption during standby	Not more than 100 percent
Small water heaters	Energy factor	Not less than 100 percent
	Recovery efficiency	Not less than 97.5 percent
	Standby loss	Not more than 115 percent
Large water heaters	Thermal efficiency	Not less than 100 percent
	Standby loss	Not more than 100 percent
Plumbing fittings		
(through 1991)	Water flow rate	Not more than 110 percent
(effective 1992)	Water flow rate	Not more than 100 percent
Fluorescent lamp ballasts	Ballast efficacy factor	Not less than 100 percent

(2) If the performance of the appliance does not fall within the tolerances listed above, the manufacturer, private brand packager, or reassembler who submitted the certification form must pay the cost of testing and take whatever steps are necessary either to recertify the appliance at a lower efficiency rating or to provide information to the satisfaction of the executive director that:

(A) in the initial certification of the model, the method of selecting the test sample complied with the requirements of section 1603, and

(B) in the initial certification of the model, the value certified was in conformance with the requirements of section 1603.

Even if this information is provided, the manufacturer of appliances described in subsections 1601(a), 1601(b) and 1601(d) through (h) shall be required to test a second unit, selected by the executive director, in a laboratory acceptable to the executive director, at the manufacturer's expense. The mean of the results of the two tests shall be calculated.

(3) If the mean of the performance of the two units falls within the tolerances listed in subsection (c)(1), no further action will be taken. If the mean of the performance of the two units (or single unit in the case of an appliance described in subsection 1601(c)) does not fall within those tolerances, the certification for that model shall be suspended by Commission order. The cost of testing plumbing fittings which fail to meet the marking provisions but comply with all other requirements shall be paid by the person who sold the fitting.

(4) If any of the tests of units required by the executive director pursuant to this subsection are not undertaken by a manufacturer, the certification for that model shall be suspended by Commission order.

(5) Prior to issuing an order suspending certification of any model, the Commission shall hold a hearing under 20 California Code of Regulations sections 1230 et seq.

(6) The executive director shall have authority to test uncertified plumbing fittings being offered for sale in California which the manufacturer, packager, or reassembler has failed to certify to the Commission within 60 days of being notified by the executive director of the need for certification. The manufacturer, packager or reassembler, as appropriate, shall pay for this testing.

(7) The executive director shall have authority to test uncertified refrigerators, refrigerator-freezers, freezers, and large storage water heaters being offered for sale in California which the manufacturer has failed to certify to the Commission within 60 days of being notified by the executive director of the need for certification. The manufacturer shall pay for this testing.

NOTE: Authority cited: Sections 25213, 25218(e), and 25402(c), Public Resources Code. Reference: Section 25402(c), Public Resources Code.